

*Anyone can
handle Data...*

PHOTOMECHANISMS Incorporated

HUNTINGTON STATION, LONG ISLAND, NEW YORK

Sure, anyone can handle Data... in some forms

Books, punched cards, magnetic tape—you name it—you'll find plenty of experts to handle data in these forms. BUT, experts are few in PHOTOGRAPHIC DATA HANDLING, one of the fields in which PHOTOMECHANISMS has distinguished itself.

Our areas of special competence include:

- Engineering of Photographic Systems
 - Photographic data recording
 - Rapid, automated photographic processing
 - Display and presentation of processed data
 - Film handling systems
- Instrumentation
 - Optical test and alignment fixtures
 - Photo-optical and servo control instrumentation and simulators

If you have a problem involving the recording, conversion, or presentation of transient data—PHOTOMECHANISMS can solve it for you.

A self-contained monitor/camera/processor/projector/printer that records generated characters, character displays, or TV pictures on high speed film which it instantly processes and prints on electrostatic paper. Combines the speed and sensitivity of silver halide recording with the economy and simplicity of electrostatic printing.

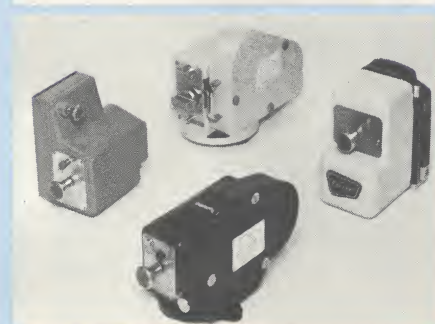
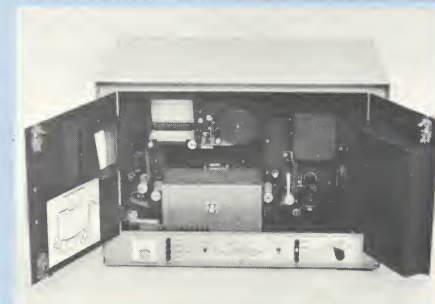
A ground station system for closely controlled processing of 70 mm. film. Photographs displayed data, develops, fixes, washes, and dries film and presents it for study in an illuminated viewer in only 90 seconds. Performs continuous processing at 20 inches per minute.

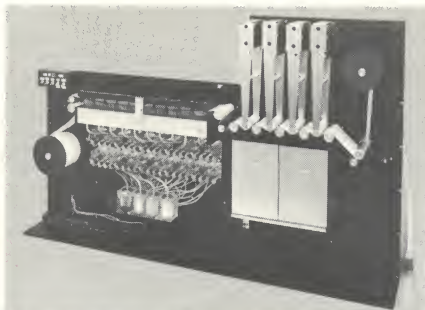
A complete line of 16 and 35 mm. cameras for medical x-ray diagnosis of complex body organ functions at rates up to 60 frames/second. Synchronization of x-ray emission and camera shutter ensures low radiation dosage.

PHOTOMECHANISMS' research laboratories are continually searching for new ways to apply the use of light sensitive materials to data handling problems. In addition to the use of both standard and exotic silver halide techniques, we can solve your data handling problem through the use of electrostatic, photoconductive and similar advanced techniques and the use of such materials as photo-sensitive plastics and diazos.

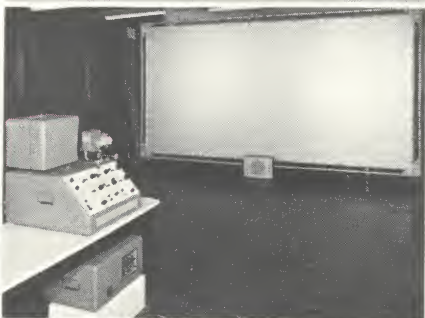
Our capabilities are strongly supported by the knowledge and experience of our affiliate, F. B. MACLAREN & CO., INC.—experts in the design and manufacture of instrument servos, analog computers, and electronic amplifiers.

The particular system you need may not yet have been built. If it hasn't, PHOTOMECHANISMS can build it. We have designed and built a wide variety of special data handling equipment for the military services, for military contractors, and for commercial organizations. Among these are:

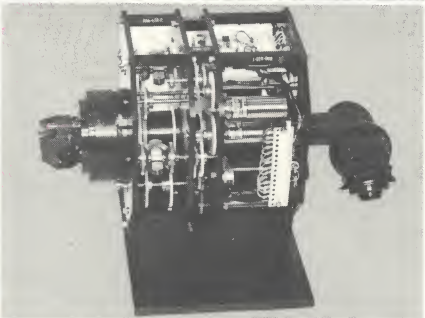




A variable speed processor-viewer that accepts and processes exposed film at speeds up to 50 feet per minute and presents it for viewing even before processing is complete. Processing rate can be matched to data input rate by simple changes of valve settings.



A shellburst simulator that teaches students to direct artillery fire. A typical combination of optical, photographic, analog computer and servo techniques, this training device superimposes simulated shellbursts on realistic terrain and permits the student to observe the results of his aiming adjustments on a large viewing screen.*



A servoed optical scanner that provides a realistic image of a terrain model or slide transparency as viewed at various angles. Designed for training astronauts, the system can be translated in three orthogonal directions to simulate observer translation and change of altitude. Wide angle fields of view up to 98° can be presented at a fixed image plane.**

These are merely samples of the ways in which PHOTOMECHANISMS' engineers and scientists have combined advanced techniques of electronics, optics, and photography for the solution of data handling problems.

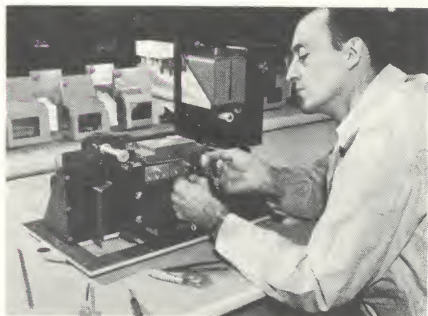
If one of the devices described above can solve your problem, we'll be glad to give you more information about it, and quote price and delivery. If your problem needs a brand new solution, we'll be glad to show you how it can be done.

* In collaboration with F. B. MacLaren & Co., Inc.

** In collaboration with Scanoptic, Inc. and F. B. MacLaren & Co., Inc.

PHOTOMECHANISMS HAS THE SKILLS AND FACILITIES TO PRODUCE THE INSTRUMENT YOU NEED.

Once your data handling problem has been solved on the drawing board, PHOTOMECHANISMS' production staff, working in modern, fully equipped shops and laboratories, is ready to produce the equipment you need in any quantity.



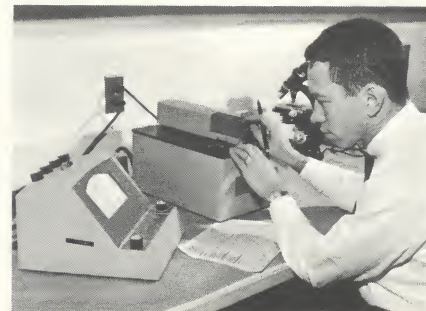
1 Final assembly of a complex camera-viewer in Photomechanisms' shop.

2 Electrical phasing of a cinefluorographic camera.

3 Testing film characteristics in Photomechanisms' sensitometry lab.



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3



PHOTOMECHANISMS modern
14,000 square foot plant in Hun-
tington Station, Long Island.

Clients who have benefited by PHOTOMECHANISMS' unique problem solving ability include:

Airborne Instruments Laboratory
Arctic Institute of North America
Argentine Naval Commission
Armour Research Foundation
Bausch and Lomb Optical Co
Bankers Trust Company
Bendix Corporation
Brookhaven National Laboratory
California Institute of Technology
Jet Propulsion Laboratory
Chase Manhattan Bank
Cornell University
Douglas Aircraft Company
Eastman Kodak Company
Ford Motor Company
Philco Corporation
Aeronutronic Division
Franklin X-Ray Corporation
General Electric Company
General Dynamics/Fort Worth
General Motors Corporation
Houston Fearless Corporation
International Business Machines Corp.
The Johns Hopkins Hospital
Kalvar Corporation
Laboratory for Electronics, Inc.
Tracerlab/Keleket

Land-Air, Inc.
Loral Electronics Corporation
Melpar, Incorporated
Motorola, Inc.
Picker X-Ray Corporation
Polaroid Corporation
Radio Corporation of America
Raytheon Company
Republic Aviation Corporation
Sanders Associates, Inc.
Sperry Gyroscope Company
U.S. Air Force
U.S. Army
Chemical Corps
Signal Corps
U.S. Navy
Navy Training Device Center
Naval Submarine Base
U.S. Weather Bureau
University of Alaska
University of California
Lawrence Radiation Laboratory
Westinghouse Electric Corporation
Weston Instruments & Electronics
Division of Daystrom, Inc.
Xerox Corporation
X-Ray & Radium, Ltd.

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DATASTAT II



HARD COPY GENERATOR

Designed for economical, on-line production of hard copy, both DATASTAT and DATASTAT II convert CRT-displayed data into electrostatic-quality prints.

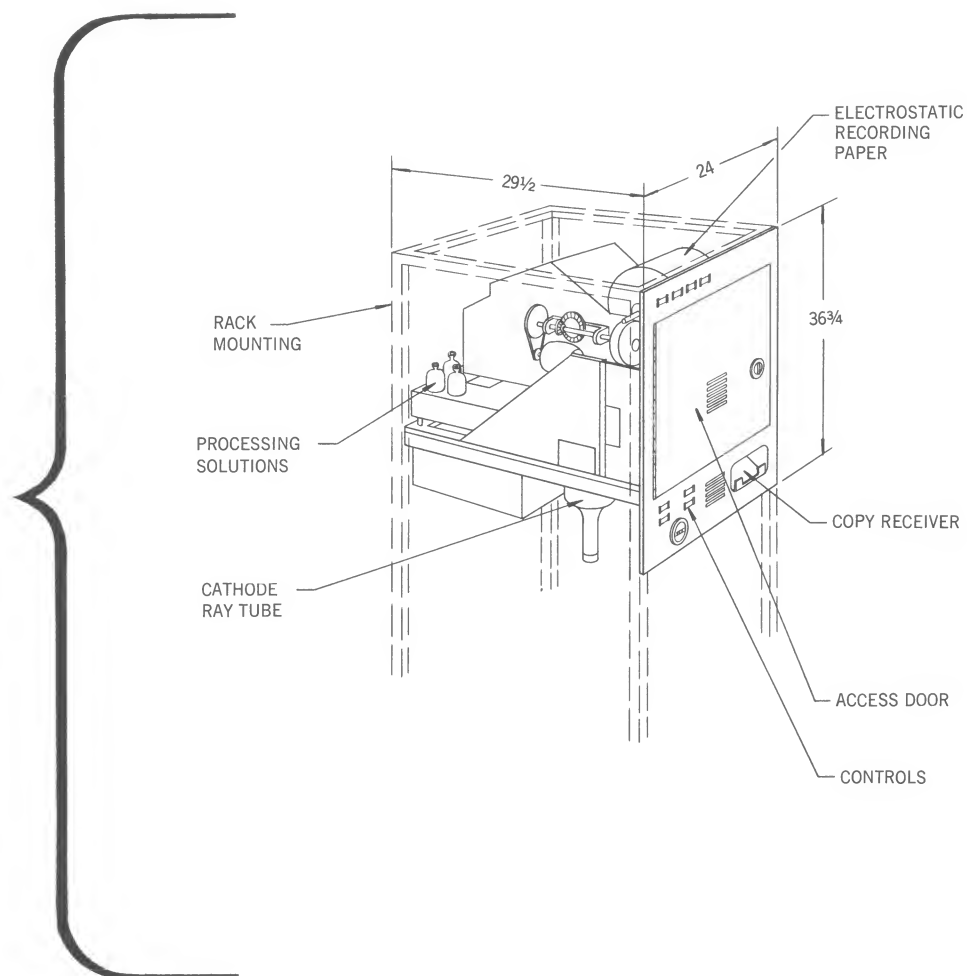
DATASTAT II, a repackaged version of the original DATASTAT, retains essentially all the functions of the first model with a 50% reduction in volume. This was achieved by external mounting of the CRT with consequent better use of space and greater flexibility.

DATASTAT II is a rack-mounted, hard copy generator that converts transient information displayed on the flat face of a cathode ray tube into a dry, permanent, hard copy suitable for storage and subsequent reference. DATASTAT II is capable of generating photographic images containing up to seven shades of gray as well as providing high contrast copies of alpha-numeric data. The panel-mounted DATASTAT II with its overall, front panel and behind panel dimensions is shown in Figure 1.

The optical system of the DATASTAT II is designed to photograph a cathode ray tube placed directly under the DATASTAT with its axis vertical. The vertical centerline axis of the tube is located 4.5 in. from the left side of the front panel and 8.37 in. behind the front panel mounting surface. The phosphor surface of the CRT is located a nominal 8.25 in. above the bottom edge of the front panel. The DATASTAT II is designed to photograph a 7 in. CRT, but slight modification of the optical path will permit the use of other sizes and orientations. Although the CRT is not normally supplied with the DATASTAT, provision is made for mounting it on the frame to ensure proper alignment and focus of the CRT onto the film. (Fig. 2 shows a DATASTAT II system schematic.)

DATASTAT II RACK MOUNTED INSTALLATION

FIG. 1



PERFORMANCE SEQUENCE AND RATES

Upon command, the DATASTAT will expose one frame of film to record the displayed CRT image. Command pulses can be accepted at rates up to 4 frames per second for a maximum of 25 frames of recorded data. Immediately after exposure and rapid pulldown, the exposed film enters a RAPIDATA® processor where the silver halide image is developed as the film moves.

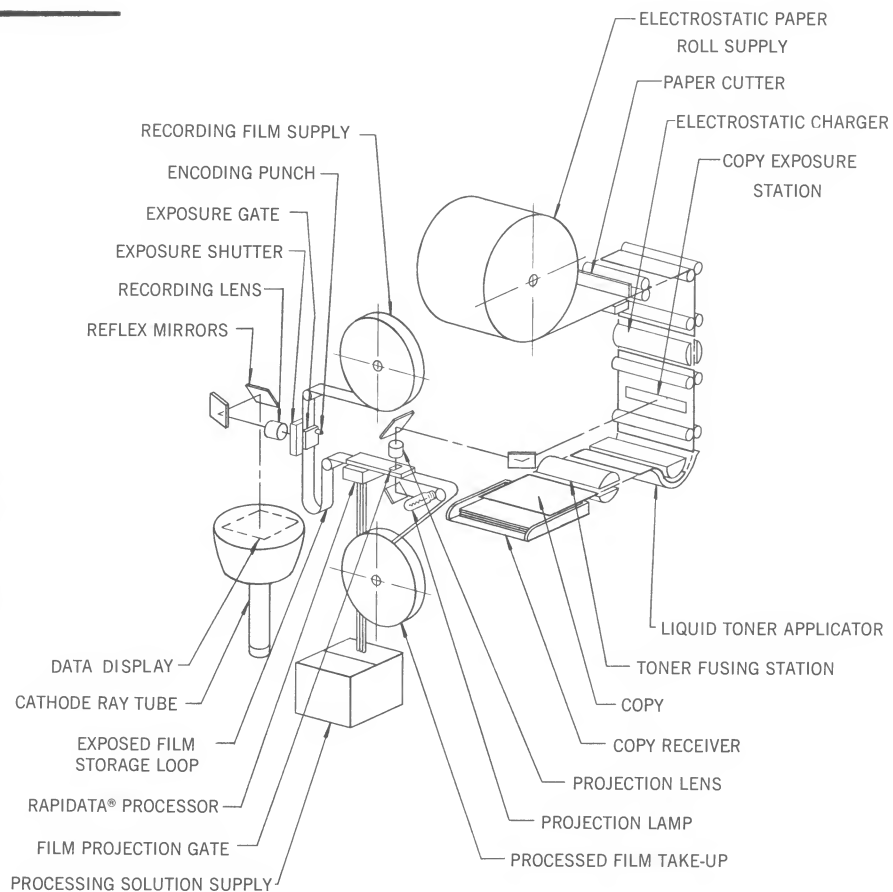
Directly adjacent to the processing station is a slit-type printing station which projects the silver halide image onto moving electrostatic paper. After an exposure and pulldown command is received, the exposed film is pushed down into a slack loop between the exposure station and the processor. From this slack loop, it is drawn out at a smooth and continuous rate through the processing and projection stations. Use of the patented RAPIDATA® processor and the slit printing technique from moving film to moving paper, gives maximum utilization of both film and paper with minimum lamp wattage and extremely long lamp life.

8½ x 11 in. electrostatic images can be generated from successive film frames at a maximum rate of one every five seconds. During any period when film images are being recorded at a higher rate than they are being processed, they are stored in the unprocessed film loop between the exposure station and the processor.

Access time to the first hard copy is less than 30 seconds after the command pulse. Each print commanded within five seconds of the previous one will be produced within five seconds. Copies requested more rapidly than one every five seconds are stored in the unprocessed film loop up to a maximum of 25 frames. This maximum can be increased if necessary.

DATASTAT II SYSTEM SCHEMATIC

FIG. 2



COMMAND SEQUENCE AND SIGNALS

To request a copy, a switch closure of 50 milliseconds minimum duration is required. Upon receipt of a command signal, DATASTAT II will automatically lock out and ignore any additional command signals until it has completed the 250 millisecond exposure cycle. Exposure can be controlled by the internal shutter, by controlling the video, or by unblanking and blanking the CRT.

CONTROLS AND INDICATORS

The following are provided on the front panel: main power breaker, power-on light, ready light, running time meter, end of film indicator, end of paper indicator, single frame advance switch.

RESOLUTION

DATASTAT II has a 1600 TV line resolution across the 8½ in. width of the electrostatic paper. This is close to the normal visual resolution limit for the standard 10 in. viewing distance.

CONSTRUCTION

The front panel of the DATASTAT II is 24 in. wide by 36.75 in. high. Of open frame construction, it is designed to mount on rails in a standard rack cabinet and will extend 29.5 in. into the cabinet past the panel mounting surface. The unit is designed to rest on slide rails permanently mounted into the cabinet on standard panel mounting centers. Suitably shielded in the critical areas, DATASTAT II will operate in the subdued interior light of the standard electronic rack. Access for replenishment of expendable materials, is provided through both front and rear doors.

POWER REQUIREMENTS

115 \pm 10 volt AC, single phase, 10 amps average, 15 amps peak power.

EXPENDABLE MATERIALS

Depending on the rate of command signals, DATASTAT II will yield a minimum of 900 and a maximum of 3600 hard copies from each 400 ft. roll of 35 mm. film. Electrostatic copy paper is provided in 1000 foot rolls and will yield more than 1000 8½ x 11 in. copies per roll. Film processing solutions, electrostatic paper, toner, and toner replenisher are stocked by Photomechanisms and are quality controlled to ensure optimum results in each application of DATASTAT II.

GENERAL

DATASTAT II conforms to NASA and military specifications with respect to radio frequency interference, power fluctuation, and ground station equipment environmental, material, and workmanship requirements.

For application information, prices and delivery write or call



PHOTOMECHANISMS, INC. 15 STEPAN PLACE HUNTINGTON STATION, N. Y.
(516) HA 3-4411

Continuous, unattended, on-line HARD COPY PRODUCTION

with...

DATASTAT

- Sensitivity of silver halide recording
- High speed accumulation of exposed film
- Ease of operation of electrostatic printing
- Low cost of electrostatic paper
- Rapidly processed negative for record or duplication
- For CRT monitoring, telemetry recording, or other inputs

MAKES
TRANSIENT
DATA
PERMANENT



Photomechanisms' DATASTAT system is a self-contained Monitor/Camera/Processor/Printer that automatically records transient data from TV or CRT presentations of all types including character generation and produces 8½x11 electrostatic hard copies. Print quality is high and either continuous tone or line copy may be produced, depending on the type of data being recorded.

The versatile DATASTAT will accept input data at any rate up to 6 frames per second. The first hard copy print is produced with a total time lag of 30 seconds and succeeding frames are produced at the rate of one every five seconds.

The DATASTAT uses a rapidly processed 35 mm. film intermediate that offers several unique advantages including high speed transient recording; high quality hard copy printing using a direct-positive technique; and a permanent film record.

Because it is designed to perform all its recording and printing functions automatically, the DATASTAT can operate remotely and, if necessary, unattended for long periods. This means it can be fitted easily into any on or off-line system where data is generated continuously or intermittently and hard copy is required with minimum delay.

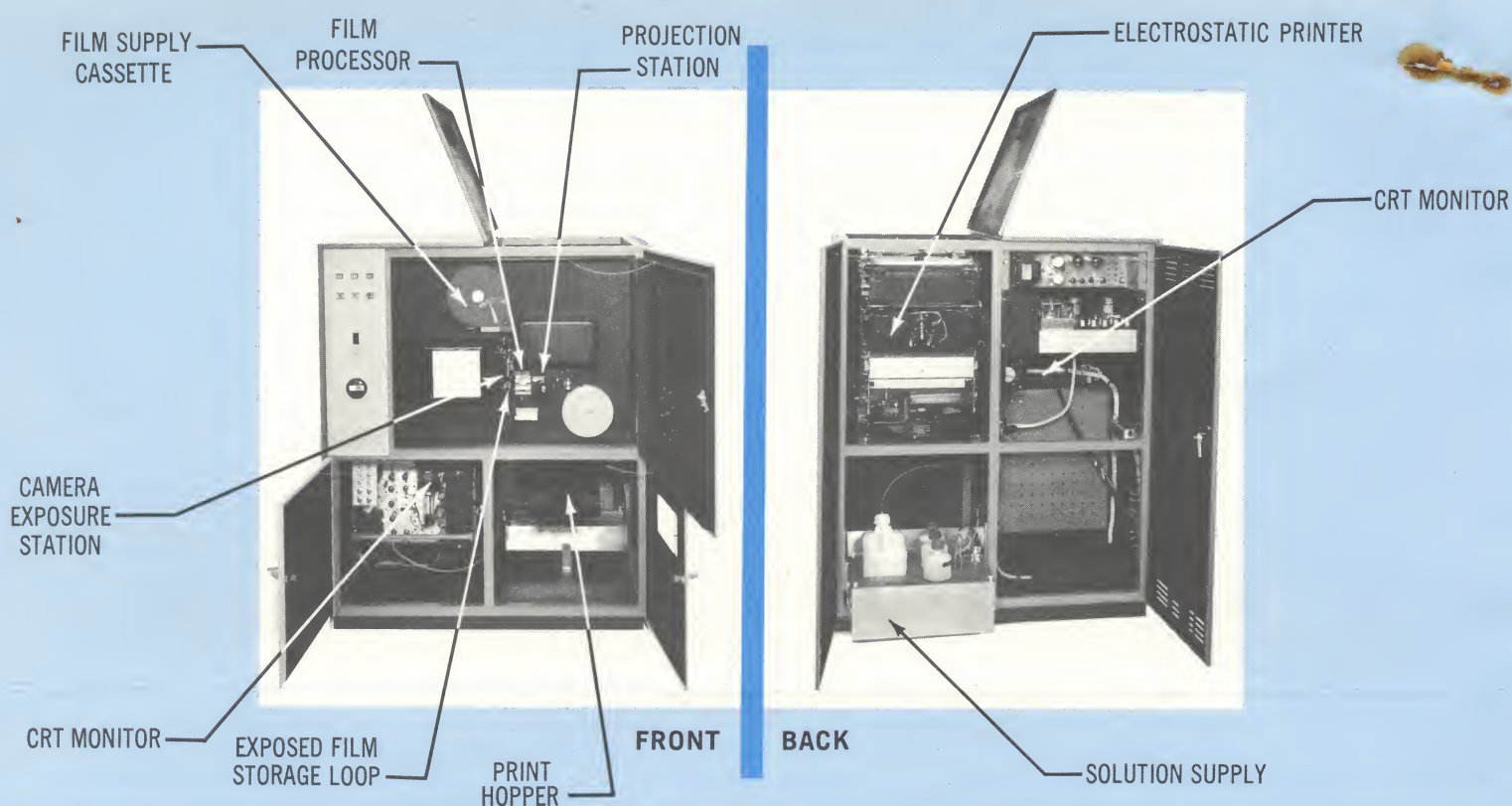
DATASTAT's economical electrostatic printing is particularly attractive where a large volume of data makes other recording media prohibitively expensive.

If you need hard copy from transient data, and if economy and speed are important to you, you'll be interested in the DATASTAT technical information on the reverse. You'll be interested, too, in what DATASTAT can do to solve your data handling problem.

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The DATASTAT system shown above consists of five integrated subsystems: the CRT monitor, camera, processor, projection system, and electrostatic printer.

In operation, data is displayed on the CRT and is recorded by the DATASTAT camera. A two digit identification as well as time and date are simultaneously recorded on each film frame by auxiliary data indicators.

The exposed film is fed to a RAPIDATA® processor where fresh, heated solutions are applied to the emulsion side for sensitometrically controlled developing. The processed image is immediately flow-printed onto charged electrostatic print paper.

A toner bath quickly develops the black on white print and a dry print is deposited in a hopper.

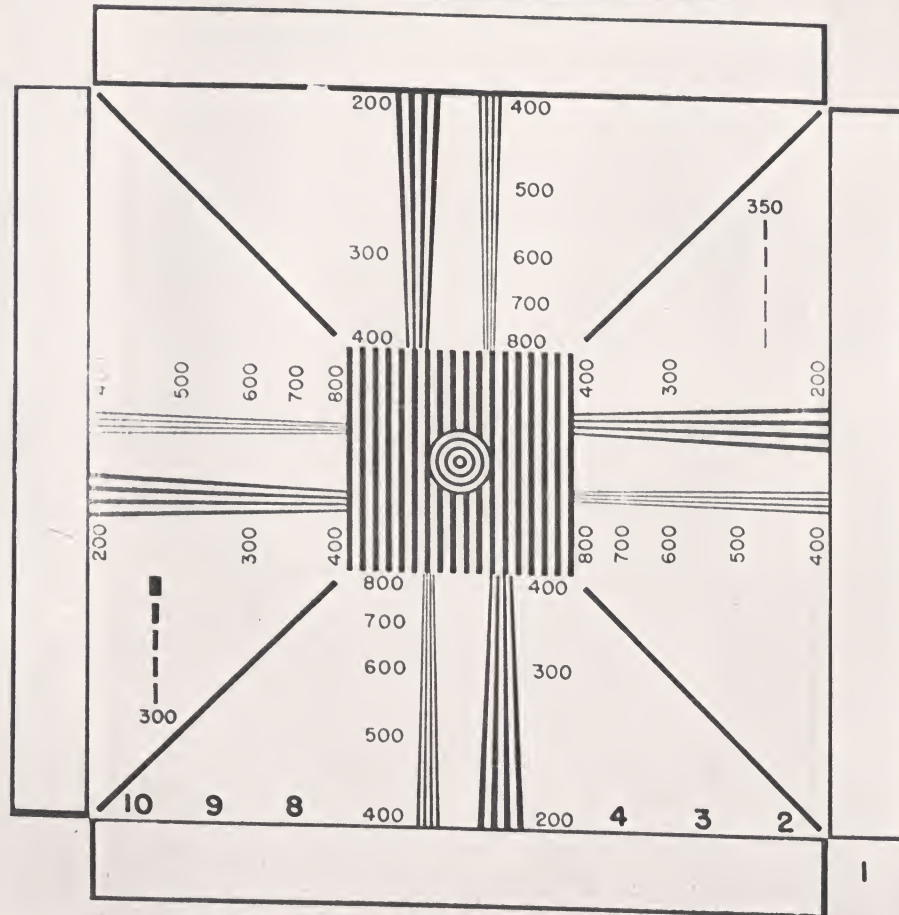
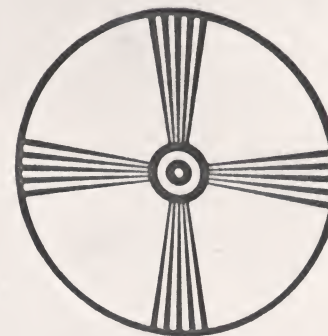
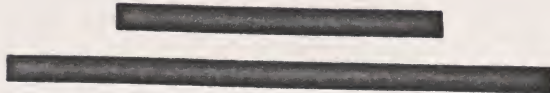
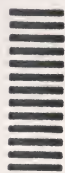
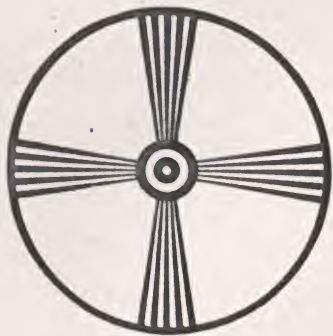
Large access doors, easily replaced modular subassemblies, and pre-mixed processing solutions make servicing and maintenance of the DATASTAT quick and easy and virtually eliminate down time.

DATASTAT System Specifications

- CRT Monitor** — Supplied with high resolution, 10 in., flat face CRT in standard 19 inch rack mount. Will accept any similar unit.
 - Data Indicators** — 14 numeric digits (0-9) imaged onto film frame.
 - Recording Film** — High speed, blue sensitive, 400 foot capacity, 35 mm. Cassette loaded.
 - Recording Rate** — Maximum rate on pulse command, 6 per second. Maximum storage loop between exposure and processing, 25 frames. Higher rates and larger loops available on special order.
 - Film Processing** — Completely automatic. RAPIDATA® photo-processor, sensitometrically controlled. Drawer-type solution supply assembly.
 - Hard Copy Exposure** — Synchronized, flow-film exposure from film to electrostatic paper.
 - Type of Copy Produced** — Positive, black on white, line print from bright line display or positive, continuous tone print from electrically reversed TV display.
 - Electrostatic Paper** — 1000 foot roll of 8½ inch paper automatically cut to 11 inch length. Daylight loaded.
 - Standby** — Can be kept in standby condition indefinitely without impairing performance.
-
- | | | |
|--|---|---|
| Material consumption per 1000 hard copy prints: | { | 1 1000 foot roll electrostatic paper
110 feet 35 mm. film
½ pint developer solution
½ pint stabilizer solution
1 quart toner solution |
|--|---|---|

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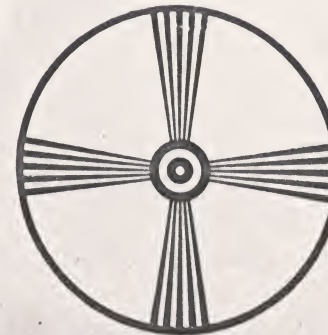
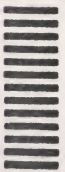
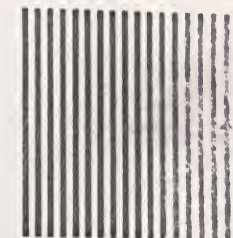
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1



HARDCOPY SAMPLE

RETA RESOLUTION

CHART 1956

15 Stepar Place, Huntington Station, L. I., New York

May 10, 1965

Mr. T. Nelson
Systems Consultant
Box 1546
Poughkeepsie, New York 12601

Dear Mr. Nelson:

Thank you for your further interest in our DATASTAT systems for hard copy generation. DATASTAT equipments prove what photographic techniques can do to solve difficult data handling problems. Enclosed are typical samples of hard copy that have been generated in one of our production units, as well as descriptive literature on the second generation version, the DATASTAT II.

The high quality copy is the result of a system using our RAPIDATA photo-processor together with a specially developed electrostatic printing system using liquid toner. Selection of the best system components, plus the use of a paper-toner combination particularly suited to projection printing from an inter-negative, provides hard copy that is probably better than anything else now available.

DATASTAT II is currently in production. Although it is a standard product it is not a stock item, and is manufactured to order in the quantity required, finished to specifications. Prices of DATASTAT II are based upon quantity production lots which do not include the electronics or CRT, and are budgetarily quoted at this time for your information:

<u>Quantity</u>	<u>Cost/Unit</u>
5	\$ 25,000
10	20,000
15	17,500
25	15,000

DATASTAT II may well be applicable to a data handling problem plaguing you, and if you will tell us more about your problem, we'll be happy to show you how the DATASTAT II probably can help solve it.

We will be pleased to provide any further information of interest to you and look forward to hearing of your possible use of this new hard copy capability.

Very truly yours,

PHOTOMECHANISMS, INC.

Carl J. Brassier

Carl J. Brassier, Vice President
Product Development & Marketing

CJB:ah
Enclosures